

## Diabetes Disparities: Addressing Inequities on Multiple Levels

Satellite Conference and Live Webcast  
Thursday, March 11, 2010  
1:00 - 3:00 p.m. Central Time

Produced by the Alabama Department of Public Health  
Video Communications and Distance Learning Division

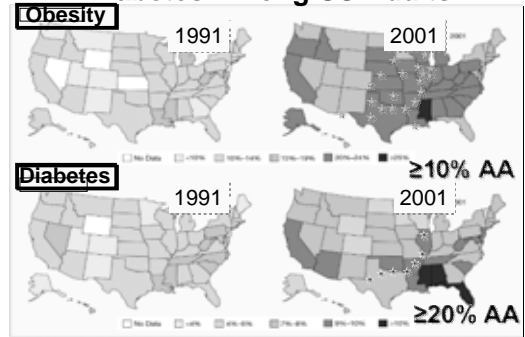
## Faculty

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Assistant Professor  
UAB Division of Preventive Medicine  
UAB Health Center Montgomery

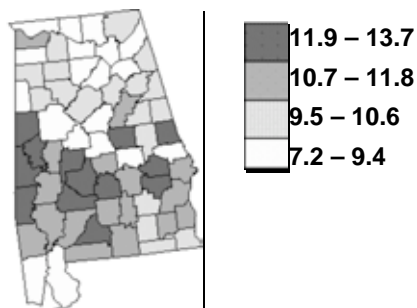
## Overview

- Prevalence of diabetes by race/culture
- Race and Ethnicity: Biology or Culture
- Addressing disparities
  - Individual level
  - Health care provider level
  - Health system level
  - Societal level

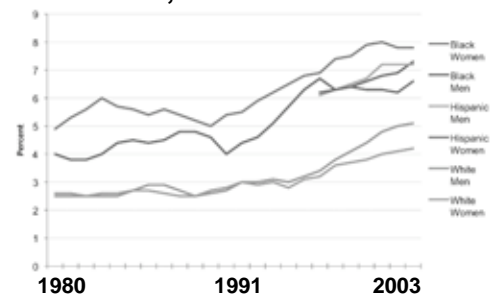
## Prevalence of Obesity and Diagnosed Diabetes Among US Adults



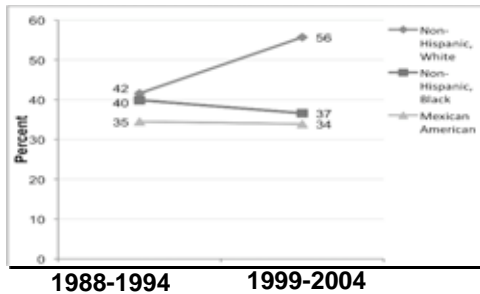
## Percentage of Adults ≥ 20 Years Old with Diabetes (2005)



## Percentage of Population with Diagnosed Diabetes, by Race and Sex, U.S. 1980-2003



**Percent Adults (>40) with Diagnosed Diabetes Who Have Optimal Glucose Control (HbA1c<7.0%)**



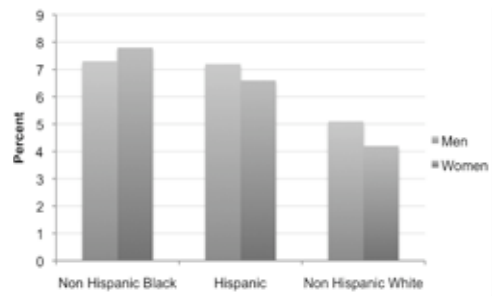
**How Did This Happen?**

- Genetically - basically the same as hunter/gather and agrarian ancestors
- To conserve for famine we are programmed to
  - Avoid exercise as adults
  - Prefer sweet, salty, fatty foods

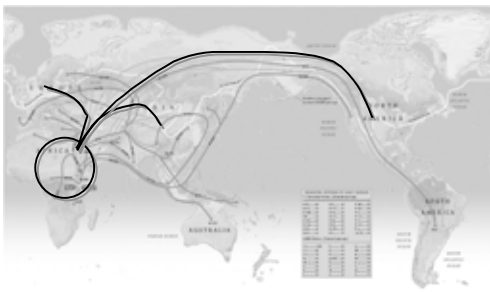
**Environment**

- Inexpensive, accessible, nutrient-poor energy-dense food
- Transportation that favors cars over pedestrians
- Sedentary entertainment

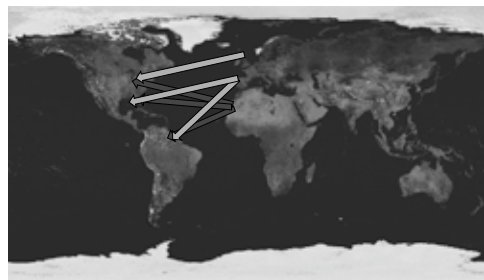
**More Diabetes (and Obesity) in Minority Populations**



**Early Human Migration and Diversification**



**Later Human Migration**



### **Later Human Migration**

- Spain/Portugal → Central/South America
  - Spain’s contact with North Africa
    - More tolerant of different color groups
  - Spain adopted Roman slave law codes
    - Slaves and Indians as vassals or royal subjects and have certain rights

### **Later Human Migration**

- Spanish Catholic Church promoted conversion, baptism, and attendance of slaves at integrated religious services
- Economies of many Latin American countries more mixed and less dependent on slavery
- Early settlers were largely male

### **Later Human Migration**

- Britain → North America
  - Britain isolated
  - North American conception of slaves as property
  - North American churches for blacks and whites were separate
  - Economy of southern North America very dependent on slavery
  - First settlers both men and women

### **U.S. Census and Federal Office of Management and Budget**

- Definitions of ethnicity and race
  - Mandated that “in data collection and presentation, federal agencies are required to use a minimum of two ethnicities: “Hispanic of Latino” and “Not Hispanic or Latino””

### **U.S. Census and Federal Office of Management and Budget**

- “Hispanic or Latino” as “a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race”

### **Why Something Extra for Hispanic/Latino?**

- Indigenous Central Americans
  - Mestizos: mixed European and Amerindian Ancestry
- African slaves
  - Brought to both English and Spanish-speaking colonies

## Why Something Extra for Hispanic/Latino?

- Spanish-speaking African descendants don't fit neatly into the Black/African American category

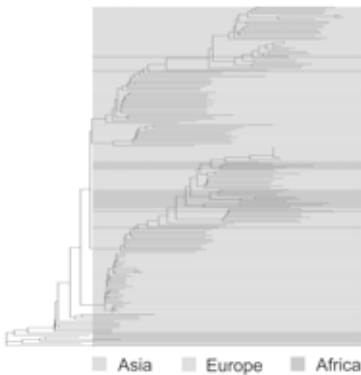
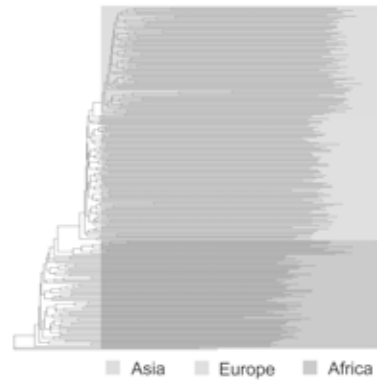
## U.S. Census and Federal Office of Management and Budget

- Definitions of ethnicity and race

White (European American)	66.0%
Black or African American	12.3%
American Indian or Alaskan Native	0.76%
Asian (Asian American)	4.3%
Native Hawaiian & Other Pacific Islander	1.39%
Two or more races Hispanic/Latino	15.1%

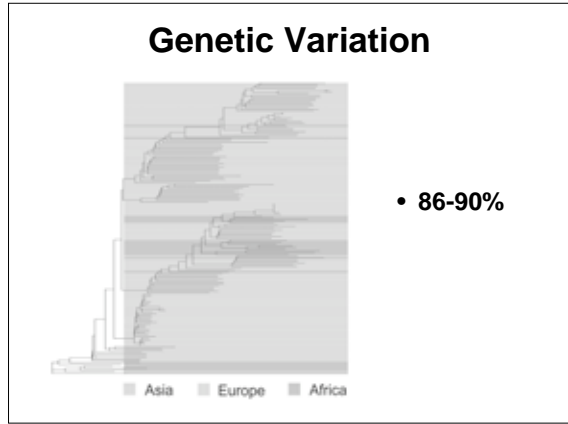
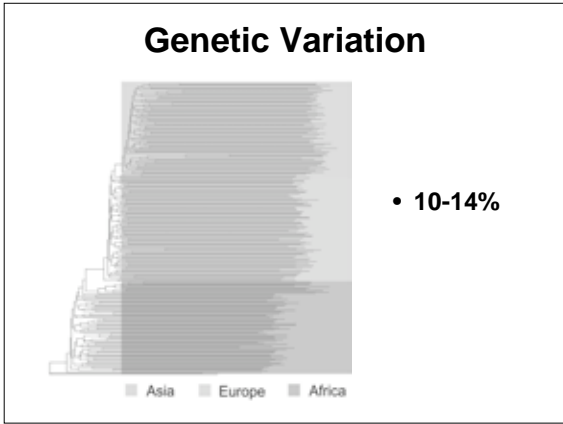
## Race/Ethnicity: Biology or Culture

- Genetic variation
  - There is more variation within ancestral populations than between ancestral populations



## Genetic Variation

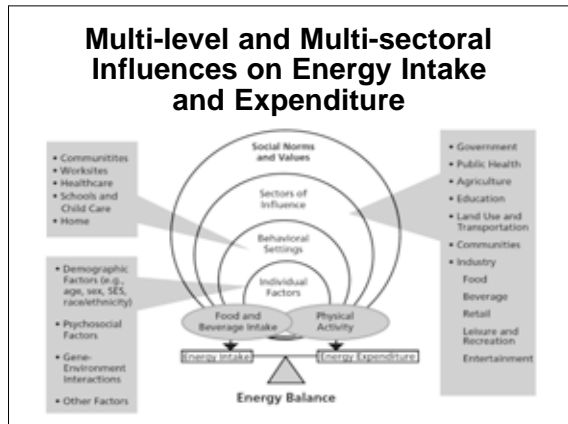
- There is more variation within ancestral populations than between ancestral populations



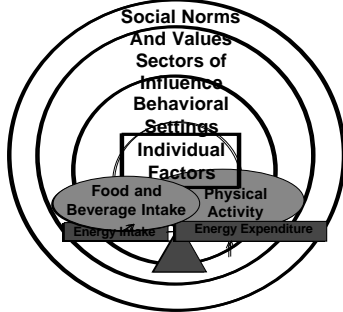
- ### Genetic Variation
- There is more variation within ancestral populations than between ancestral populations
  - The molecular phylogenetic data suggests race/ethnicity is more a cultural construct than a genetic construct
  - Interaction of genes and environment cause most diseases

- ### Biology or Culture
- Changes our approach to diseases
  - Genetic
    - Disparities are predetermined
    - Medicine not good at treating genetics disease
  - Sickle cell disease

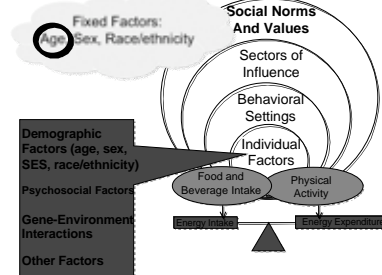
- ### Biology or Culture
- Cultural
    - Need to take responsibility for disparities



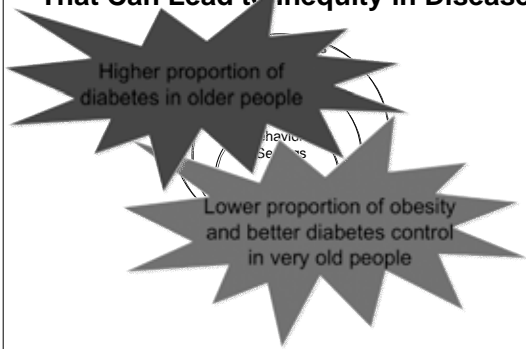
### Multi-level and Multi-sectoral Factors That Can Lead to Inequity in Disease



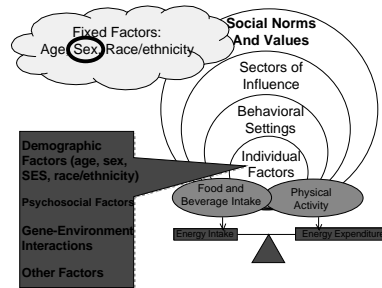
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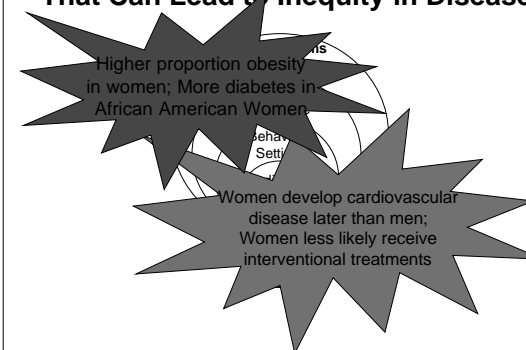
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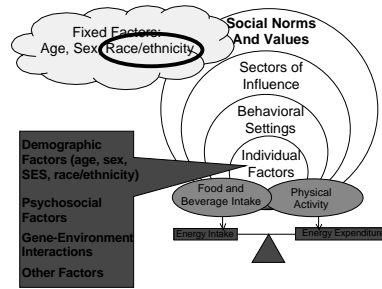
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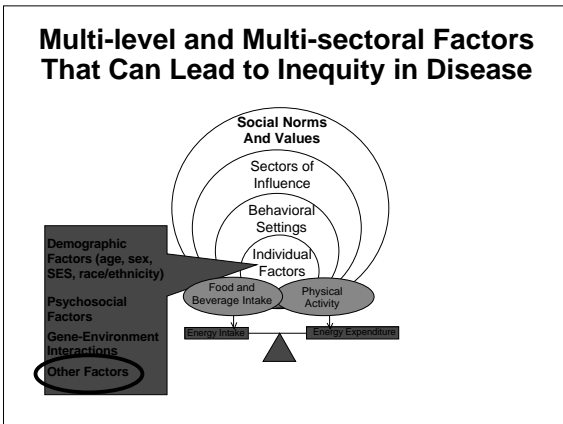
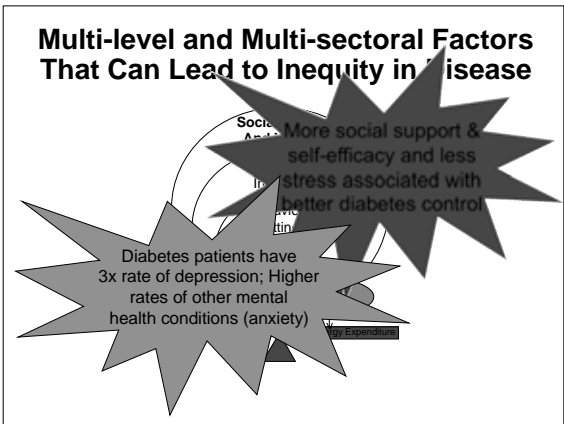
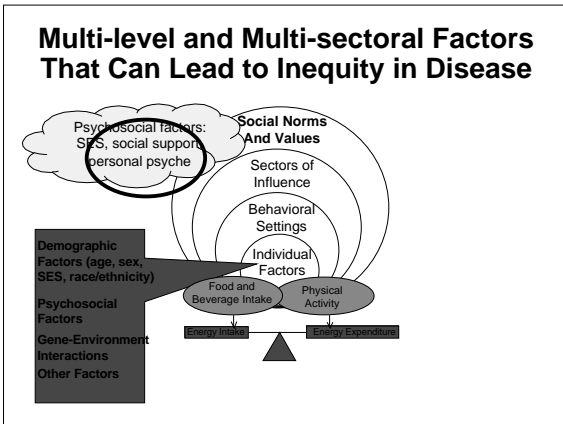
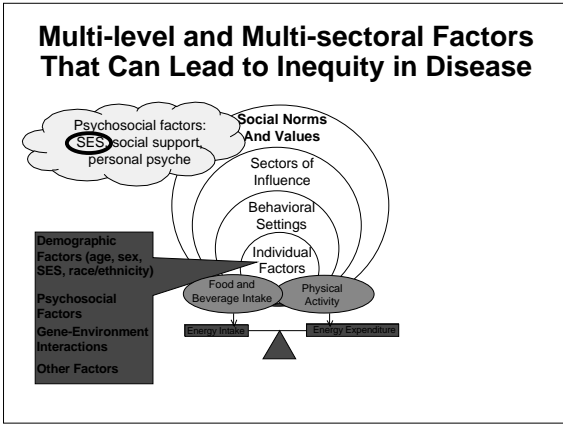
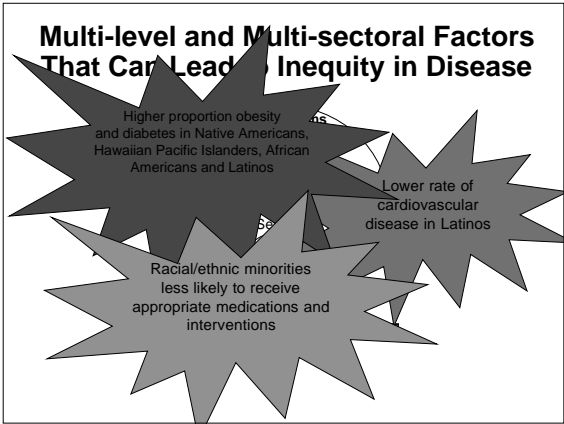


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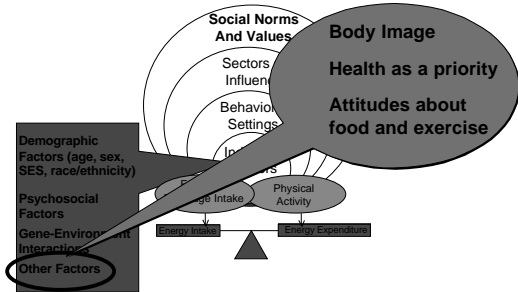


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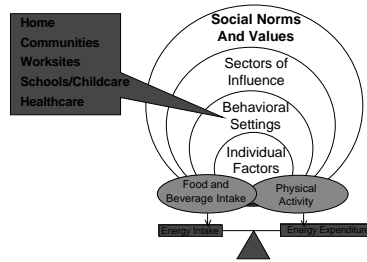




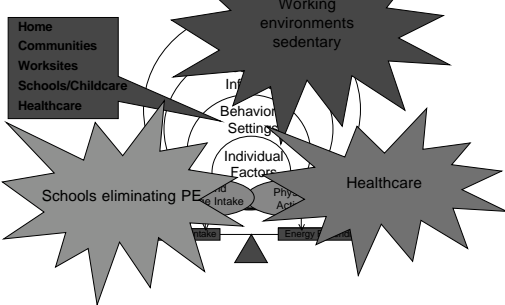
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### Multiple Levels in Healthcare Contributing to Disease

Patient	Provider	System
Not exercising	Ineffective	
Not eating right	Not patient centered	
Not taking prescribed medications or accepting interventional procedures	Inequitable	

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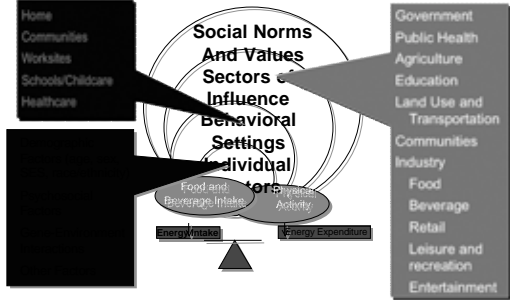
**Stereotyping  
Discrimination**

### Multiple Levels in Healthcare Contributing to Disease

Patient	Provider	System
Not exercising	Ineffective	Less reimbursement for primary care
Not eating right	Not patient centered	Time pressures for clinic visits
Not taking prescribed medications or accepting interventional procedures	Inequitable	Employer-based insurance/public assistance underfunded



### Multi-level and Multi-sectoral Factors That Can Lead to Inequity in Disease

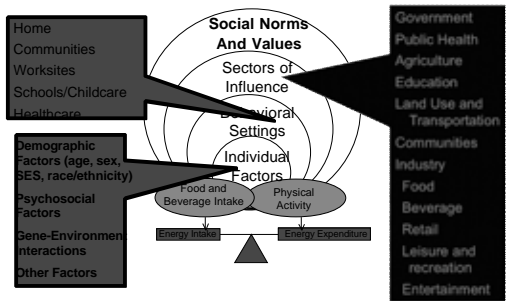


### Social Ecological Influences on Obesity Control: Instigating Problems and Informing Potential Solutions

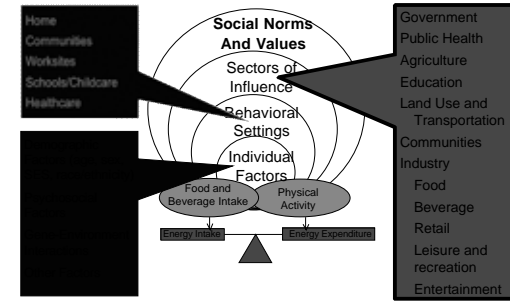
More than 30 years of intervening without sustainable effect points to the need for a "mid-course correction" to arrest this epidemic.



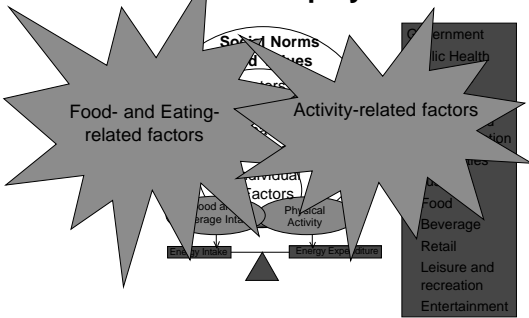
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### Food and Eating Related Factors

- **Federal subsidies for corn**
  - Used in cattle feed, high fructose corn syrup
  - Cheap burgers and soda
- **Healthy food**
  - More perishable (short shelf life)
  - Lower sales (less aggressive marketing)

### **Food Availability**

- **Affluent areas**
  - Supermarkets
  - Farmers' markets
  - Health food stores
- **Low-income &/or minority areas**
  - Fast food restaurants
  - Convenience stores
  - Liquor stores
  - Bars

### **Advertising**

- **Billboards in predominately African American and Latino neighborhoods advertise alcohol five times more than in white neighborhoods**
- **Fewer ads for healthy foods/beverages and more ads for unhealthy foods in magazines and TV shows targeting African American compared with "general audiences"**

### **Activity-Related Factors**

- **Medically underserved neighborhoods have**
  - Fewer recreational and fitness facilities
  - Fewer parks
  - Fewer private or community gardens
  - Lesser perceived and actual safety

### **Activity-Related Factors**

- Insufficient lighting
- Lesser cleanliness
- Poor sidewalk maintenance
- Poorer school playground maintenance

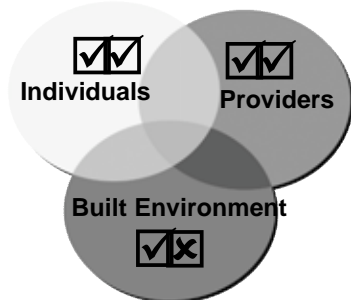
### **Advertising**

- **Outside ads in lower income areas**
  - More promotion of products associated with sedentary behaviors
    - Films
    - TV shows
    - Autos

### **Advertising**

- **Fewer promotion of physical activity**
  - Sporting equipment
  - Fitness clubs

## Observational and Interventional Research



## Built Environment Studies

- Not shown beneficial changes to community design decreases obesity rates or BMI
- Virtually all data is cross-sectional
- Most are secondary data analyses using indirect indicators of neighborhood status
- Most done in affluent neighborhoods

## Next Steps

- Prospective (randomized controlled) trials to evaluate if changes to environment affect health
- Should not propose public health policies until shown benefit

## Conclusion

- Diabetes and obesity are truly epidemics with no end in sight
- Work must continue on behavior change for individuals and for providers
- Evaluations must be done on changes to the build environment

## Individualism

- The “American Way”
  - Make it on your own, pull yourself up by your bootstraps

## Social Responsibility

- One’s actions benefit society more than oneself
  - Zoning restrictions for better access to healthy food and safe activity
  - Advertising restrictions
    - Did it with cigarettes
  - Food processing restrictions
    - Did it with trans fats

